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## Some faunistic and taxonomic notes on two *Euzophera* species of East Turkey (Lepidoptera, Pyralidae)

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**Abstract:** Some faunistic and taxonomic notes on two *Euzophera* species of East Turkey (Lepidoptera, Pyralidae). *Cesa News* 147: 1-6, 11 figs, 1 map, 1 table.

Two *Euzophera* species are reported here faunistically. *Euzophera formosella* Rebel is recorded from Van Province (Bahçesaray) as new for the fauna of Turkey. *Euzophera luculentella* Ragonot is also new for the fauna of Bitlis and Van Provinces. Identity and taxonomical problems of the last species are also discussed.

**Keywords:** *Euzophera formosella*, *luculentella*, *Phycitinae*, *Pyralidae*, *Lepidoptera*, fauna, Bitlis, Süphan, Van, Bahçesaray, Zerneke.

Among the recent attempts of the authors, Pyralidae of SE Turkey was published faunistically (Koçak & Kemal, 2015). In this paper, 6 species of *Euzophera* Zeller, 1867 have been reported, i.e., *bigella*, *flagella*, *imperfectella*, *osseatella*, *pinguis*, and *pulchella*. Among the new and little known Pyralidae, two *Euzophera* species, *alpherakyella* and *imperfectella* were discussed (Kemal & Koçak, 2017). The former species was reported as new to the fauna of Turkey. As a result of Bahçesaray expeditions in 2016, the authors published recently several important papers on the fauna and taxonomy of Pyralidae (Kemal & Koçak, 2017a-c). During last excursions of the authors in Van and Bitlis Provinces, individuals of some species collected have caught the attention of the authors. In this framework, two *Euzophera* species are evaluated below from the faunistic and taxonomical standpoints.

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***Euzophera formosella* (Rebel,1910) (Figs. 1-3)**

During the excursion to Krapet Pass (Van Province, Bahçesaray) in 2017, the authors found a single male of *Euzophera* Zeller among the hundreds of nocturnal moths, which attracted by the light trap. Its external and genitalic characters fit rather well to *Euzophera formosella* Rebel (Roesler,1973).

Adult phenology and daily activity: July, univoltine. Nocturnal and rare at the locality collected. It is recorded at 3000m, perhaps the highest level regarding its vertical distribution.

Habitat: High mountain steppe.

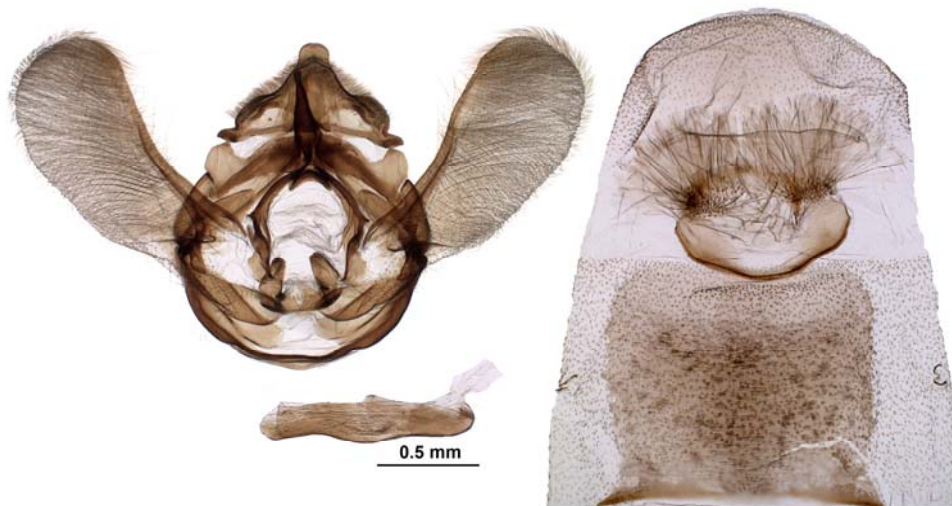
Distribution: The species was described by Rebel (1910) from Ural Mountains (Russia). Currently, it is known from Russia (Ural), Kazakhstan (Uralsk, Emba river), Mongolia, Kuldscha (Uighur A.R., China), Afghanistan, Iran (Fars), Iraq, and Syria (Tartouss) (Roesler,1973). Turkey (Van Province) (present record).

The species is slightly larger than the next *Euzophera* species. Male wingspan: 26mm.

Material examined: 1♂. East Turkey, Van Province, Bahçesaray, Krapet Pass 3000m (65Abc), 17 7 2017, M. Kemal & A.Koçak leg. (Cesa)



**Fig. 1** – *Euzophera formosella*. Nocturnal. Van Prov., Bahçesaray, Krapet Pass 3000m on 17 7 2017, at 5:58 a.m., M. Kemal (Cesa)



**Figs. 2, 3** – *Euzophera formosella*. Male genitalia and last abdominal segments and culcita. GP2721. Van Prov., Bahçesaray, Krapet Pass, M. Kemal (Cesa)

***Euzophera luculentella* Ragonot,1888 (Figs. 4-11, Map 1)**

Discussion: Ragonot (1888: 32) described a female as “*Euzophera luculentella*” from Turkestan. It was corrected afterwards as “Kasikoparan (Arménie russe), 26 juillet. Coll. Romanoff” (Ragonot & Hampson, 1901: 47), and illustrated in Plate 24, fig.20 (*loc. cit.*).

“Kasikoparan” [Kazikoparan] is a small village currently placed in Iğdır Province (NE Turkey) (**Map 1**, marked as yellow-black spot).

The species under discussion is very little known today. Roesler (1973) in his monographic work evaluated this species from the morphological and taxonomical standpoints. While doing so, he used 4♂ 3♀ of *E. luculentella*. He illustrated two adults, one male and one female genitalia as follows:

- [1] An adult male, collected by Brandt from Iran (Comé 2600m) was illustrated in Tafel 9 fig.85-1 (**Map 1**, yellow spot)
- [2] An adult female, collected by Remane from Sudan, Blue Nile Prov., Wad Medani was illustrated in Tafel 9 fig.85-2 (**Map 1**, red spot)
- [3] Male genitalia prepared from the specimen, collected by Remane from Sudan, Kassala Prov., Erkowit, and illustrated in Tafel 55, fig.85.
- [4] Female genitalia prepared from the specimen, collected by Remane from Sudan, Ed Damer, Hudeiba, and illustrated in Tafel 113, fig.85.

According to Roesler’s monographic work, there is no pictorial information about typical *luculentella* in it, whereas he was aware of the Ragonot’s type GU6540♀ (Coll. ZIAN, St. Petersburg).

For the identity of a species, especially the male genitalia is very important at the present time. It was possible for Roesler to place in his work a male genitalia from Iran (Comé), which seems *luculentella* to represent better. But Roesler preferred the male genitalia from Sudan [3]. Similarly, he preferred the female genitalia from Sudan [4]. In Roesler’s monograph, *Euzophera luculentella*, distributed in Turkey and Iran, is represented by tropical pair of specimens and their genitalia. In this wise, another problem arises. Are the material from Sudan and *luculentella* from Turkey-Iran conspecific? According to Roesler, they are conspecific. But we are of the opinion that the adult male from Iran (Comé) [1] belongs to *luculentella* Ragonot. On the contrary, the Sudan materials are not *luculentella* Rag. In other expression; they are *luculentella* sensu Roesler not Ragonot.

As a result of these situations, in the Roesler’s monographic work, there is no male and female genitalia illustration for the purpose of the identity of *Euzophera luculentella* Rag. The genitalic images in the Roesler’s work represent another undescribed species of *Euzophera* Zeller.

When the male genitalia of *luculentella* from two different localities in Van Lake Basin - a region nearest to the type locality “Kasikoparan” in Turkey, were prepared, it was seen that there are structural differences, too important to be denied, between the *luculentella* from Turkey and *luculentella* sensu Roesler from Sudan. These new pictorial documents, i.e., illustrations of male genitalia of *luculentella* and abdomen segments from Turkey, justify us.

Roesler (1980) published other new species of *Euzophera* from Arabia (*Euzophera eroica*), based upon a single female (**Map 1**, green spot), and gave a new locality from “Abyssinien (Dire Daoua)” [Aethiopia] for his *luculentella* nec Ragonot (**Map 1**, red spot). In his species delimitation, Roesler mentioned also the development of proboscis in the diagnosis of his new species. Namely, he stated that the proboscis strongly reduced in *luculentella*; whereas in *eroica*, it developed well. In both Roesler’s works, there is no illustration about reduced proboscis. Therefore, its shape and position cannot be recreated in human imagination. To meet this requirement, we add here an illustration of the reduced proboscis of *Euzophera luculentella* Ragonot (**Fig.7**).

#### Brief redescription: (Figs. 4-6)

Male wingspan: 24mm. Upperside of forewing: Ground colour light brown. Oblique median and postdiscal suffusion by blackish scales more or less developed. A pair of discal black dots distinctive. Subapical area light brown. Black marginal dots well developed. Hind wing: White, costal and apical area slightly suffused by black scales. Dark marginal line distinct. Ciliae bi-coloured. In the female, markings and colouration similar to those of male. A pair of discal black dots on forewing distinct. Ground colour of hindwing darker (ex Ragonot’s illustration).

Male genitalia (**Fig. 10**, **Table 1**). Tympanal organ (**Figs. 8,9**).

Geographical distribution: Based on publications: Ragonot (1888) described this species from Kasikoparan [*recte*]. The species was also reported by Caradja (1916) from “Marasch” [=Kahramanmaraş] (**Map 1**). Amsel (1961) reported this species from Iran (Comé 2600m) (**Map 1**). Roesler (1973) gave the distributional information for this species as follows; “Kasikoparan, Marasch, Iran (Fars), Sudan (Wadi Medani, Erkowit, Hudeiba). Based on the material



examined: East Turkey, Bitlis Prov. (Adilcevaz, Süphan Mts.), Van Prov. (Gürpınar, Zerneke). Two closest localities to Kazıkoparan (**Map 1**, yellow spots).

Zoogeographically, *Euzophera luculentella* Ragonot is considered here as an Irano-Anatolian element (**Map 1**).

**Material examined:** 1♂. East Turkey, Bitlis Prov., Adilcevaz, Kızdağı of Süphan Mt., 2560m (13Ac1), on 19 8 2017, M. Kemal, A.Koçak & H.Uçak leg. - 1♂. East Turkey, Van Province, Zerneke 1975m (65Gb) on 20 7 2017; 1♂ from same place, on 27 8 2017, M. Kemal & A.Koçak leg. (Cesa)

**Table 1** – Structural comparison of the male genitalia of *Euzophera luculentella* Rag. from Turkey and Sudan.

Characters in the male genitalia	<i>luculentella</i> Ragonot from Turkey: Van, Zerneke (GP2766)	<i>luculentella</i> sensu Roesler from Sudan: Kassala, Erkowit (Roesler,1973)
culcita	absent	well developed
gnathos	shape different, thick, stout, short	slender, long
costa	well sclerotized up to round apex of valva	less sclerotized
apex	round	not round
sacculus	shorter	strongly developed
aedeagus	slender, with a special process terminally	thick
anellus	different; arms round terminally and touch each other	U-shaped



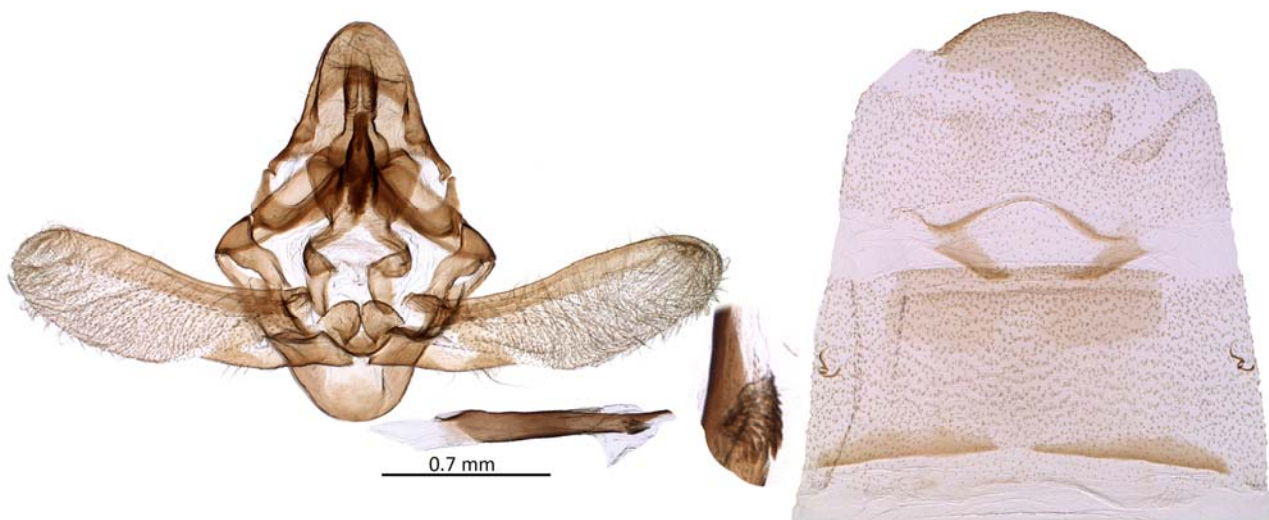
**Figs. 4, 5** – *Euzophera luculentella* (males). From Bitlis Prov., Kızdağı of Süphan Mt. 2560m (13Ac1), on 19 8 2017 (left); from Van Prov., Gürpınar, Zerneke 1975m (65Gb), on 27 8 2017, M. Kemal (Cesa)



**Figs. 6, 7** – *Euzophera luculentella*. Upperside of male, Van Prov., Zerneke (left). Underside of head of male (labial palpi and reduced proboscis). GP2749, Bitlis Prov., Süphan Mt. (right). M. Kemal (Cesa)

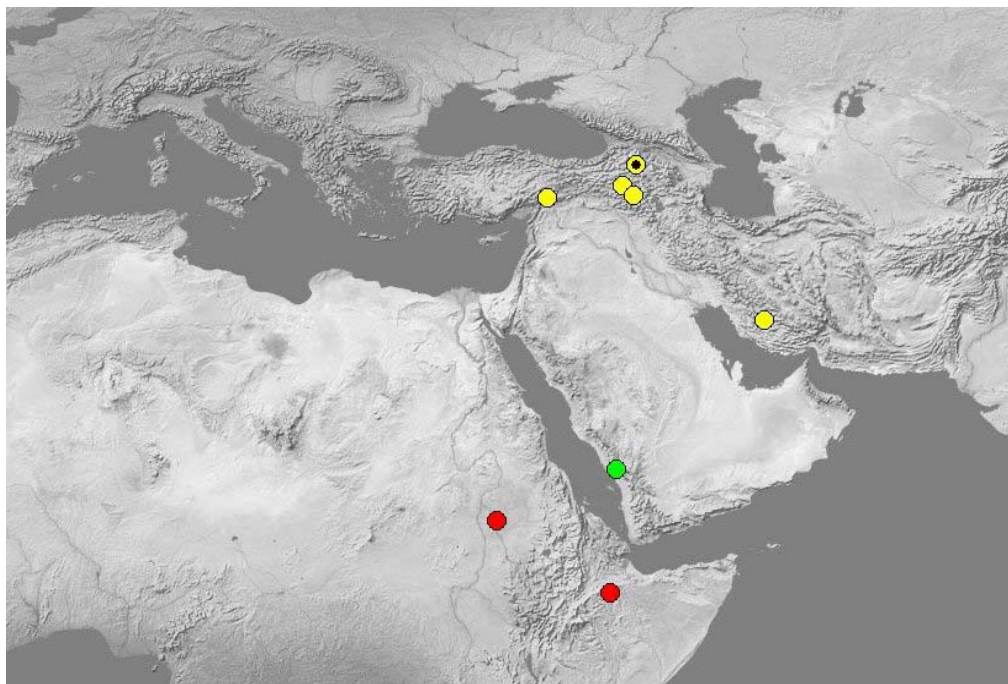


**Figs. 8, 9** – *Euzophera luculentella*. Tympanal organs (before & after preparation). GP2766. Van Prov., Zerneke, M. Kemal (Cesa)



**Figs. 10, 11** – *Euzophera luculentella*. Male genitalia (left), removed aedeagus with enlarged tip (middle); terminal abdominal segments, culcita absent (right). GP2766. Van Prov., Gürpınar, Zerneke, M. Kemal (Cesa)





**Map 1** – *Euzophera* spp. Yellow spots: *Euzophera luculentella* Ragonot, its type-locality Kazıkoparan, with black center. Red spots: *Euzophera luculentella* sensu Roesler nec Ragonot (Wad Medani [Sudan] (left), Dire Daoua [Ethiopia] (right)). Green spot: *Euzophera eroica* Roesler (Saudi Arabia, Asir). A. Koçak (Cesa)

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